IN THE TITLE:

Please delete the present title in its entirety and substitute the following therefore.

--IMAGE REPRODUCTION SYSTEM FOR REPRODUCING A STILL IMAGE FROM A VIDEO TAPE--.

IN THE SPECIFICATION:

Please add a new paragraph at page 1, line 2, after the title of the invention, as follows.

--This is a divisional of Application No. 09/175,448, filed October 20, 1998, which is a divisional of Application No. 07/882,284, filed May 13, 1992.--

Please amend the paragraph starting at page 1, line 5, and ending at line 8, as follows.

--The present invention relates to an image reproduction system, and, more particularly to an image reproduction system ~~for preferably~~ preferably for use in a video printing system for printing out image information stored on a video tape.--

Please amend the paragraph starting at page 1, line 14, and ending at page 2, line 4, as follows.

--The printing-out operation in the video printing system 1 shown in Fig. 9 is performed as follows. First, a picked up image signal is transmitted from video camera 10 to the video printer 11 as an analog signal. The transmitted ~~imaged~~ image signal, that is, a picture signal, is monitored on a display 12. On the other hand, the aforesaid analog signal is converted into a digital signal by an A/D converter 110 in the video printer 11. A desired picture is stored in a field memory 111 at the timing specified by an operation key 116 as a still image. The stored picture is arbitrarily confirmed in such a manner that it is displayed on the display 12 when a switch 115 is switched on by manipulating the key 116.

Then, information stored in the field memory 111 is supplied to a printing image unit 114 so as to be printed out by the printing image unit 114.--

Please amend the paragraphs starting at page 3, line 5, and ending at page 4, line 2, as follows.

--Fig. 18 is a schematic view which illustrates a system of the aforesaid conventional type. Referring to Fig. 18, reference numeral 281 represents a VTR, 282 represents a monitor and 283 represents a video printer. ~~Then, the~~ The operation of printing out a desired picture selected from a multiplicity of pictures recorded on a tape will now be described briefly.

First, the VTR 281 is set to a reproduction mode in which the reproduced video signal supplied from the VTR 281 is caused to be supplied to the monitor 282 and the printer 283. An operator operates the manipulation unit of the printer 283 at the timing when a desired picture is displayed on the monitor 282 while confirming the pictures on the monitor 282. In response to the operation thus performed, a control unit 285 causes a memory unit 284 to store a video signal corresponding to one field (hereinafter called ~~to~~ "one picture") by controlling the memory unit 284. When the memory unit 284 receives the video signals which correspond to the one picture, it reads out the video signals at a predetermined speed which corresponds to the printing speed of a printing unit 286. As a result, a desired picture can be printed out by the printing unit 286.--

Please amend the paragraphs starting at page 4, line 7, and ending at line 23, as follows.

--In a conventional system of the type described above, even if a plurality of pictures on one tape are printed out, the following operation must be repeatedly performed: one picture is selected, and then it is printed out while taking a relatively long time of about one ~~minutes~~ minute for each picture and then the next picture is selected. Therefore, in a case where a multiplicity of pictures are printed out, the operator must operate the system until all of the pictures have been printed out while performing required manipulations.

In a case where there is a desire of again printing out a picture which has been once printed out, it is substantially impossible to again select the same picture. That is, since the VTR records video signals for about 30 to 60 fields per second in a case of, for example, an NTSC, it records pictures of ~~abut~~ about 430,000 fields on a video tape capable of recording pictures for 120 minutes. Therefore, it is substantially impossible to again ~~retrieving~~ retrieve a specific picture from the aforesaid number of pictures.--

Please amend the paragraphs starting at page 6, line 18, and ending at line 25, as follows.

--Fig. 2, which is comprised of Figs. 2A-2C, is a schematic structural view which illustrates the video print system according to the embodiment of the present invention in a state where information is being reproduced;

Fig. 3, which is comprised of Figs. 3A and 3B, is a schematic structural view which illustrates the video print system according to the embodiment of the present invention in a state where information is being recorded;--

Please amend the paragraphs starting at page 8, line 11, and ending at line 15, as follows.

--Fig. 19, which is comprised of Figs. 19A and 19B, is a structural block diagram which illustrates another embodiment of a video print system according to the present invention;

Fig. 20, which is comprised of Figs. 20A and 20B, is a block diagram which illustrates a VTR unit of the system shown in Fig. 19;--

Please amend the paragraph starting at page 9, line 13, and ending at line 21, as follows.

--The system 100 comprises a VTR unit 90, which is an image reproducing device, an analog signal input terminal 20a capable of receiving an analog signal supplied from, for example, a video camera 20 ~~or the like~~, a video printer unit 14 for receiving a digital signal supplied from the VTR unit 90 via a data bus 26 or an analog signal

transmitted from the video camera 20 so as to print out pictures and a data compression/expansion unit 80 to be described later, the video printer unit 14 being an image forming device.--

Please amend the paragraph starting at page 10, line 11, and ending at line 20, as follows.

--The VTR unit 90 comprises a VTR body 90a, a key input switch 46 serving as an input unit and a controller 42 for a ~~cam coder~~ camcorder serving as a retrieving unit. As a result, print retrieving information about an image to be printed can be recorded by an inputting operation performed with the key input switch 46 when image information is recorded on an 8 mm video tape 41. The digital signal denoting the image to be printed is supplied to another end unit of the data selector 77 via interfaces 27, 64 and the data ~~bust~~ bus 26.--

Please amend the paragraphs starting at page 10, line 21, and ending at page 12, line 5, as follows.

--Then, taking the 8mm video tape 41 as an example, the way of recording various information items on the tape 41 by the VTR body 90a will now be described with reference to Fig. 4 in the forming order of the recording tracks from a lower unit to an upwards diagonal direction. Fig. 4 illustrates the pattern of the recording tracks formed on the tape 41. As shown in Fig. 4, the tape ~~+~~ 41 stores the following recorded information items: PCM region ~~+~~ E1, INDEX region E2 and VIDEO region E3.

The PCM region El is a region in which digital data is recorded at a data rate of 0.5 M to 1.5 Mbps. In the PCM region E1, 8 to 16 bit quantizing stereo audio data, or field/frame digital still image information, and ID words (which consists of ID0 to ID5 and to which the sound quality, and the image quality, ~~and~~ date of photography, and the like are recorded) for sub-code information about the aforesaid digital still image information, the sink and the address for re-constituting data, and a PQ parity for detecting an error or a CRCC for correcting an error, and the like are stored.

The INDEX region E2 is a region in which data is recorded by using a technology similar to that used at the time of the PCM recording operation and which is composed of a search signal serving as print retrieving information for retrieving and a data signal. A state where all of data items are of the search signal ~~are~~ "0" means a normal state, while a state where all of that are "1" means an input of a head searching signal. Data signal is interposed between S (start block) and END (end block), and 5 blocks composed of data blocks BL0 to BL4 are disposed in the data signal. Each block is composed of data words "WD0" to "WD4" and "CRCC". Since each word WD is capable of recording 8 bit data, the number of ~~sheet~~ sheets to be printed out and the like can be set by an outer recording operation of the INDEX region E2.--

Please amend the paragraphs starting at page 13, line 1, and ending at page 14, at line 13, as follows.

--~~Then, the~~ The schematic structure of each unit of this system 100 will now be described with reference to Fig. 2 which is a schematic structural view illustrating information reproducing process performed by this system 100.

The aforesaid data compression/expansion unit 80 comprises an A/D converter 21, a D/A converter 60, a frame memory for storing a digital image signal, ~~a~~ first and second compression/expansion circuits 23a and 23b for compressing/expanding the digital image signal, a mode selection switch (SW1) 24, a switch (SW5) 49, a switch (SW2) 48 capable of selecting the image signal or still image information and interfaces (I/F) 24 and 44.

The VTR body 90A of the aforesaid VTR unit 90 comprises an audio processing circuit 33 for ~~subjected~~ subjecting supplied audio signal to a predetermined process, an analog signal processing circuit 34 for subjecting the supplied image signal to a predetermined process, a tracking servo circuit 38 for transmitting the 4-frequency pilot signal (4f), an addition distributing device 36, a rate converting circuit 28 for converting image data into a predetermined data rate, a sub-code data generating circuit 30 for generating mode information, and date information, and the like as ID words of PCM data, a PCM processing circuit 29 for writing mode information or the like supplied from the aforesaid sub-code data generating circuit 30 together with still image data (SV data) to the PCM region El, time-division signal distributing device (SW3) 37 for sequentially supplying the information items to heads 40a and 40b disposed on a recording rotational drum 39 at the time of the recording mode in order to form the track pattern as shown in Fig. 4 on the tape 41, the time-division signal distributing device (SW3) 37 distributing the information items in a time-sequential manner at the time of the reproduction mode according to the contents of information. The VTR body 90a further comprises an index information generating circuit (INDEX) 35 and an A/D converter 75.--

Please amend the paragraph starting at page 14, line 17, and ending at page 15, line 18, as follows.

--The video printer 14 comprises a buffer memory 65 for storing an image signal supplied through the analog image signal input terminal 20a via the A/D converter 61 and the data selector (SW6) 77 or an image signal supplied through the interface (I/F) 64, the image signal being stored as a still image. The video printer 14 further comprises first and second expanders 68 and 69 for expanding still image data stored in the buffer memory 65 in a contrary manner to that at the time of the recording operation and a frame memory 71 for storing expanded image data via a selector (SW6) 70 as a still image information to be reproduced and a printing unit 72 for generating a video printed image by using the aforesaid still image information stored in the frame memory 71. The video printer 14 further comprises a printer controller 67 for controlling ~~the~~ each unit of the video printer 14 in accordance with control data supplied via the interface (I/F) 66 and an input signal for selectively operating the selector (SW6) 70 supplied from the key input switch 76. The first and second expanders 68, 69, the selector (SW6) 70, the frame memory 71 and the printing unit 72 constitute a printer 91. The aforesaid buffer memory 65 acts to supply information about the vacant capacity of the buffer memory 65 to the printer controller 67. The printer controller 67 controls the state of occupancy of the buffer memory 65 due to the storage of data in accordance with information about the vacant capacity supplied from the buffer memory 65.--

Please amend the paragraph starting at page 20, line 10, and ending at line 24, as follows.

--Information in the INDEX region E2 is subjected in such a manner that a data group as shown in Fig. 4 is reproduced by the INDEX 35 so as to be supplied to the cam corder controller 42. The head searching operation for the printing out process is performed by rotating the capstan at a high speed by the aforesaid servo circuit 38 until the search signal (e.g. a signal, all of data items of which are "1") written in the INDEX region E2. When the servo circuit 38 detects the search signal, all of data ~~item~~ items of which are "1", it reads print information (information about the number of sheets and the size) set to the VIDEO region E3 so as to transmit it to the cam coder controller 42. The aforesaid data items are transmitted to the data bus 26 via the If 43 so as to be received by the video printer unit 14 at need.--

Please amend the paragraph starting at page 21, line 19, and ending at page 22, line 3, as follows.

--The switch (SW5) 49 selects non-compressed information and each information substantially expanded/restored to the original image information by the first or the second expanding process. The selection output signal from the switch (SW5) 49 is stored on the frame memory 22 as a still picture for one picture so ~~a~~ as to be read out by the D/A converter 60 at the video rate. Then, it is supplied to the switch 48 as analog image information as described above. If necessary, it is displayed on the image monitor device such as an EVF 45.--

Please amend the paragraphs starting at page 22, line 19, and ending at page 23, line 17, as follows.

--In a case where the aforesaid digital image signal is made to be the input source, the transmitted image signal has been supplied on the data bus 26 adjacent to the video printer unit 14. Therefore, the video printer unit 14 receives image data of the aforesaid information ~~is~~ into the buffer memory 65 adjacent to the printer unit 14 and the printer controller 67 via the I/F 64 and receives control data to the same via the I/F 66.

The output from the I/F 64 is supplied to the buffer memory 65 via the data selector (SW6) 77. The buffer memory 65 always transmits information about the space capacity of the buffer memory 65 to the printer controller 67 in order to enable the printer controller 67 to control the memory occupancy state due to the storage of data. The first and second expanders 68 and 69 expand image data, which have been temporarily stored, under control of the printer controller 67 in ~~a~~ an opposite manner to that performed at the time of the recording operation. The selector (SW6) 70 stores expanded image data together with non-compressed data on the frame memory 71 as still image information to be reproduced. The printing unit 72 is controlled by the printer controller 67 so as to generate a video print picture by using still image information.--

Please amend the paragraph starting at page 24, line 3, and ending at page 25, line 5, as follows.

--When the operation is started, the servo circuit 38 in the VTR unit 90 searches the video tape 41 under control of the cam coder controller 42 (Sl). The cam

coder controller 42 confirms whether or not the head-searching signal has been detected from the INDEX region E2 (S2) and causes the servo circuit 38 to continue its searching operation until the fact that all of the data items are "1" is detected in the head searching signal. If it is detected, the rotation of the capstan 19 is stopped and the flow proceeds to step S3 on the affirmative side. In this step, the printer controller 67 requests print status "PT•ST" for confirming the operation state of the unit including the printer unit 14. The printer controller 67 in the unit including the printer unit 14 which has received the request transmitted via the data ~~but~~ bus 26 confirms the state of the buffer memory 65 (S4). The printer controller 67 receives information about the vacant capacity from the buffer memory 65 so as to confirm that the memory has been saturated (S5). If it has been saturated, the flow proceeds to step S6 in which "PT•ST" is set to "Busy". If there is a vacant capacity, "PT•ST" is set to "Free" (S7) and "Free•Capa" is set according to the state of occupancy of the memory (S8). The printer controller 67 transmits the thus set "PT•ST" information about the state of the printer unit 14 and "Free•Capa" (F•C)" information about the vacant capacity of the buffer memory 65 to the data ~~but~~ bus 26 so as to be sent to the unit including the VTR unit 90 (S9).--

Please amend the paragraph starting at page 25, line 6, and ending at line 9, as follows.

--The cam coder controller 42 receives "PT•ST" and "F.C" (S10). If "PT•ST" is "Busy" (S11), ~~returning~~ the flow returns to said step S3 and ~~waiting~~ waits till the operation of printer unit 14 ~~become~~ becomes idle.--

Please amend the paragraph starting at page 25A, line 1, and ending at line 9, as follows.

--Then, the printer controller 67 makes comparisons between D.C and F.C, that is, the vacant capacity of the buffer memory 65 in the printer unit 14 and the quantity of image data to be transmitted from the VTR unit 90 (S13) . If the memory in the printer unit 14 ~~has~~ does not have a satisfactorily large capacity, the flow returns to step S3 in which the generation of a vacant capacity in the buffer memory 65 is waited for. If an affirmative discrimination is made, image data confirmed in step 812 is reproduced--

Please amend the paragraph starting at page 27, line 18, and ending at line 23, as follows.

--After the deletion in the step S67, it is discriminated whether still image data to be printed still remain or not (S68) . If such remain, the processing returns to the step S60. When the buffer memory 65 becomes vacant, the processing is completed.--

Please amend the paragraph starting at page 30, line 4, and ending at line 17, as follows.

--According to this embodiment, the memories required for each input section is constituted by the same memory and it is switched to the buffer memory and the frame memory or the field memory in synchronization with the selection of the input signal. Therefore, the size of the circuit can be made to be compact. Furthermore, the memory capacity of the analog signal section can be used by the digital signal section, causing design freedom to be realized. Therefore, the aforesaid problem of time loss due to the delay of the searching operation in the VTR unit 90 caused from the "printer-busy", that is, the full-operation of the buffer memory cannot ~~be~~ easily ~~taken~~ take place. As a result, an effect can be obtained in that the overall printing time can be shortened.--

Please amend the paragraph starting at page 31, line 16, and ending at page 32, line 4, as follows.

--According to this embodiment, a first mode is made to be a full mode in which the overall data in a video cassette is automatically collectively printed and a second mode is made to be a part mode in which the number of prints is specified and the specified part is automatically printed. First, in step S90, an index counter P and an index memory N are reset to zero. In next step S91, branching to a first full mode and a second part mode is made according to the mode which has been set. In a case of the full mode, the tape is rewound to the tape head in step S92, and then the flow proceeds to step S94. In the case of the part mode, the number of the pictures ~~is set~~ in the index memory N is set in step S93, and then the flow proceeds to step S94.--

Please amend the paragraph starting at page 33, line 8 and ending at line 20, as follows.

--Assuming that the index counter is set to N = 3 with respect to the process start point PS, the tape is sent in the forward direction until the index number 3 is detected. At this time, the tape sending operation is stopped at the end point PE. If N is set to a negative number, the tape sending is started in the opposite direction from the start point PS and therefore the index searching operation is started in the opposite direction. The process is completed when the determined number is realized similarly to the forward direction. ~~In actual~~ Actually, the same index information is continuously recorded for about 10 seconds, that is, about 600 tracks converted, the configuration becomes different from that shown in Fig. 11.--

Please amend the paragraph starting at page 34, line 7, and ending at line 11, as follows.

--According to this example, the first mode is made to be a full mode for collectively automatically printing ~~the~~ all information on a video cassette and the second mode is made to be part mode for automatically partially printing information while specifying the image pickup period.--

Please amend the paragraph starting at page 36, line 4, and ending at line 17, as follows.

--A unit designated by diagonal lines is a unit to which the search code is written and date entered below it corresponds to the date of the photography. Although, the distance between the marks (CP) is positioned away from each other by several hundred times ~~in actual~~ actually, DATE is written in the time sequential manner. For example, assumptions are made that Tl = January 1, 1991 and T2 = January 31, 1991, it can be understood that the subject period for the printing output operation defined by Tl and T2 are two pictures on January 1, 1991 and ~~that~~ January 15, 1991. In the aforesaid case in which only specific pictures photographed in January 1991 are desired to be printed, it can be performed by the aforesaid printing out process.--

Please amend the paragraph starting at page 41, line 5, and ending at line 6, as follows.

--~~Then, recording~~ Recording format of print data will now be described with reference to Figs. 21 and 22.--

Please amend the paragraph starting at page 41, line 21 and ending at page 42, line 3, as follows.

--Fig. 22 (a) illustrates a date mode in which the date and the day of the week and the error correction code are expressed by 8 bits, Fig. 22 (b) illustrates a time mode in which the time of the photography, the frame ~~No,~~ No. and the error correction code are expressed by 8 bits and Fig. 22 (c) illustrates a time series mode in which ~~thee~~ the

time frame No. from the start unit of the tape and the error correction code are expressed by 8 bits.--

Please amend the paragraph starting at page 48, line 5, and ending at line 7, as follows.

--The sensor unit 522 is a detection processor for ~~reeding~~ reading bar code information shown in the lower left portion of Fig. 26.--

Please amend the paragraphs starting at page 49, line 8, and ending at page 50, line 2, as follows.

--First, the VTR 211 is brought to the reproduction mode by operating the operation unit 230 shown in Fig. 19. At this time, the system controller 401 of the VTR 211 shown in Fig. 20 controls each unit of the apparatus according to control information supplied from the control unit 521 via the I/F 520 and 301. For example, the system controller 401 controls the capstan motor 403 and the drum motor 404 via the servo circuit 402 and as well ~~as~~ controls the switches 429, 412a, 412b and 414 via the selection signal generator 425. The reproducing speed can, of course, be arbitrarily changed by the aforesaid dial 505 and the pause key 503 in this reproduction mode. The aforesaid change can be realized by changing the rotational speed of the capstan motor 203. Furthermore, the relative speed between heads Ha and Hb and the tape T can be maintained at a constant speed by changing the rotational speed of the drum motor 404. Furthermore, the difference in the inclination between the trace locus of the head and the track is always absorbed by the head moving mechanisms Ma and Mb.--

Please amend the paragraph starting at page 52, line 14, and ending at line 18, as follows.

--Then, the operator confirms the picture to be printed and print data while observing the picture displayed on the monitor 202 so as to check whether or not the contents of the picture ~~is~~ are the contents of the desired picture (step 10) .--

Please amend the paragraph starting at page 53, line 1, and ending at line 21, as follows.

--~~In usual~~ Usually, if the VTR shown in Fig. 19 is in the recording mode, the state of the video signal received by the video recording signal processing circuit 407 is discriminated to be suitable to be recorded and therefore the video signal is supplied to the switch 410. On the other hand, the audio signal digitized by the AID converter 430 or the digitized still image data is read out from the memory 417 after its data rate has been lowered. Then, the switch 450 acts to select the AUD terminal in the case of the audio signal or the SV terminal in the case of the still image. The code data encoder 408 encodes it before it is supplied to the switch 410 via the switch 409 which is always closed.
Fig. 21 schematically illustrates the rotational phase of the heads Ha and Hb and the trace position on the tape T. The switch 410 causes the video recording signal processing circuit 407 to be connected to the amplifiers 411a and 411b in a period in which the heads Ha and Hb trace the video area VA. On the other hand, it causes the code data encoder 408 to be connected to the amplifiers 411a and 411b in a period in which the heads Ha and Hb trace the audio area AA.--

Please amend the paragraphs starting at page 54, line 16, and ending at page 55, line 5, as follows.

--Then, the system controller 401 rotates the capstan motor 403 at the same speed as the normal recording speed so that the head searching signal is recorded to the aforesaid header unit for 10 seconds. ~~In usual~~ Usually, a 2.9 MHz carrier signal is recorded to the header unit and a 5.8 MHz carrier signal is recorded to the unit which corresponds to the aforesaid 10 seconds. The 1 bit showing whether or not the parent picture of the 0-th bit of the aforesaid word WD0 reproduces the head searching signal in step 10 shown in Fig. 25. If it is 5.8 MHz, "1" is automatically set.

~~Then, an~~ An operation of printing the print specifying picture from the tape, to which the print specifying picture is set, will now be described.--

Please amend the paragraphs starting at page 60, line 11, and ending at line 16, as follows.

--Although a tape-like medium is used according to the aforesaid embodiment, a disc like medium or another shape, such as a solid memory can employed. In addition, although a TV signal is employed as the video signal, the present invention is not limited to this. For example, a still image such as an electronic file may be employed.--